# THE SCIENTIFIC AMERICAN.

THE ADVOCATE OF INDUSTRY AND ENTERPRISE, AND JOURNAL OF MECHANICAL AND OTHER IMPROVEMENTS.

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THE SCIENTIFIC AMERICAN,
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(The Principal Office being at New York,)

By RUFUS PORTER.

Each number of this paper is furnished with from two to five ORIGINAL ENGRAVINGS, many of them elegant, and illustrative of NEW INVENTIONS, SCIENTIFIC PRINCIPLES, and CURIOSITIES; and contains as much Interesting Intelligence as six ordinary daily papers, consisting of notices of the progress of Mechanical and other Scientific Improvements,—American and Foreign Inventions; Catalogues of American Patents,—Scientific Essays, illustrative of the principles of the Sciences of MECHANICS, CHEMISTRY, and ARCHITECTURE;—Instruction in various Arts and Trades;—Curious Philosophical Expements;—Miscellaneous Intelligence, Poetry and, occasionally, Music.

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TERMS OF ADVERTISING.—For 10 lines, or less, 50 cents for the first, and 12 1-2 cents for every subsequent insertion.


## Mechanic's Song.

All jovial Mechanics, come join in my song.
And let the brisk chorus go bounding along;
Though some may be poor, and some rich there may be,
You all are contented, and happy and free.

Ye Tailors! of ancient and noble renown,
Who clothe all the people in country and town;
Remember that Adam, your father and head,
Though the Lord of the world, was a tailor by trade.

Ye Masons! who work in stone, mortar and brick,
And lay the foundation, deep, solid and thick;
Though hard be your labor, yet lasting your fame;
Both Egypt and China your wonders proclaim.

Ye Smiths! who forge tools for all here below.
You have nothing to fear while you smite and you blow,
All things you may conquer, so happy your lot,
If you're careful *to strike while your iron is hot.*

Ye Shoemakers! nobly from ages long past,
Have defended your rights with your *awl* to the *last*;
And Coblers, all merry, not only stop holes,
But work night and day for the good of our *soles*.

Ye Cabinet Makers! brave workers in wood,
As you work for the ladies your work must be good;
And Joiners and Carpenters, far off and near,
Stick close to your trades, and you've nothing to fear.

Ye Hatters! who oft, with hands not very fair,
Fix hats on a block for a blockhead to wear;
Though Charity covers a sin now and then,
You cover the heads and the sins of all men.

Ye Coach Makers! must not by tax be controlled,
But ship off your coaches and fetch us home gold;
The roll of your coach made Copernicus reel,
And fancy the world to turn round like a wheel.

Ye Carders, and Spinners, and Weavers attend,
And the good advice take of "Poor Richard" your friend;
Stick close to your looms, and your wheels and your card
And you never need fear of the times being hard.

Ye Printers! who give us our learning and news,
And impartially print, for Turks, Christians, and Jews,
Let your favorite toast ever sound in the streets—
"The freedom of press and a volume in sheets."

Ye Coopers! who rattle with driver and adze,
And lecture each day upon *hoops* and on *heads*,—
The famous old ballad of "Love in a Tub,"
You may sing to the tune of your rub a dub dub.

Ye Ship Builders, Riggers, and Makers of Sails,
Already the fame of your labor prevails,
And still you shall see o'er the proud swelling tide,
The ships of our nation triumphantly ride!

Each Tradesman turn out, with his toot in his hand,
To cherish the Arts, and keep Peace through the land!
Each 'Prentice and Journeyman join in my song,
And let the brisk chorus go bounding along!

## Meditation on Self.

As I walk'd by myself, I said to myself,
And myself said again to me,
Look to thyself, take care of thyself,
For nobody cares for thee.

Then I said to myself, and answer'd myself
With the self-same repartee
If you are not sure to look to yourself,
Wo be unto thee!

SINGULAR INTERMARRIAGE.—A Mr. Harwood had two daughters by his first wife, the eldest of whom was married to John Coshick; this Coshick had a daughter by his first wife also, whom old Harwood married, and by her he had a son, therefore John Coshick's second wife could say

My Father is my Son,
And I'm my mother's mother;
My sister is my daughter,
And I'm grandame to my brother.

POVERTY.—Start not at the labor-doom of honest poverty; it is to poverty that we are indebted for the discovery of a new world; it made Franklin a philosopher, Hogarth a painter, and Napoleon the conquerer of Europe. The mightiest minds that ever astonished the civilized world, were nursed in the vale of poverty; that was their incentive to action, their stimulus to glory and immortality.

## MUNGER'S IMPROVED WATER WHEEL.

FIG. 1.

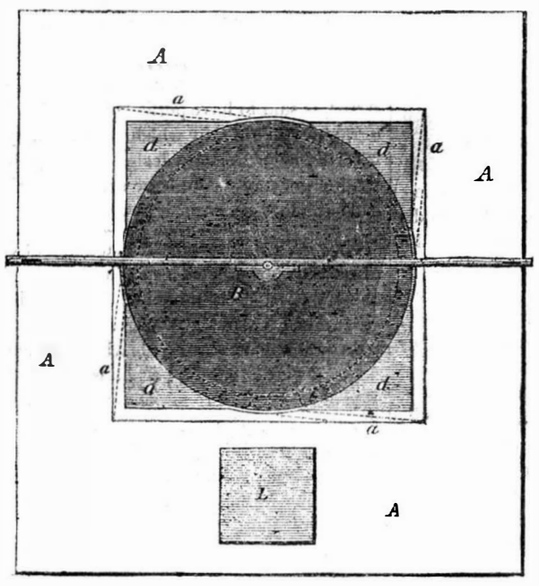
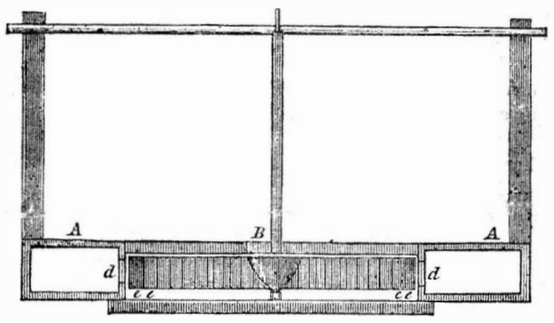


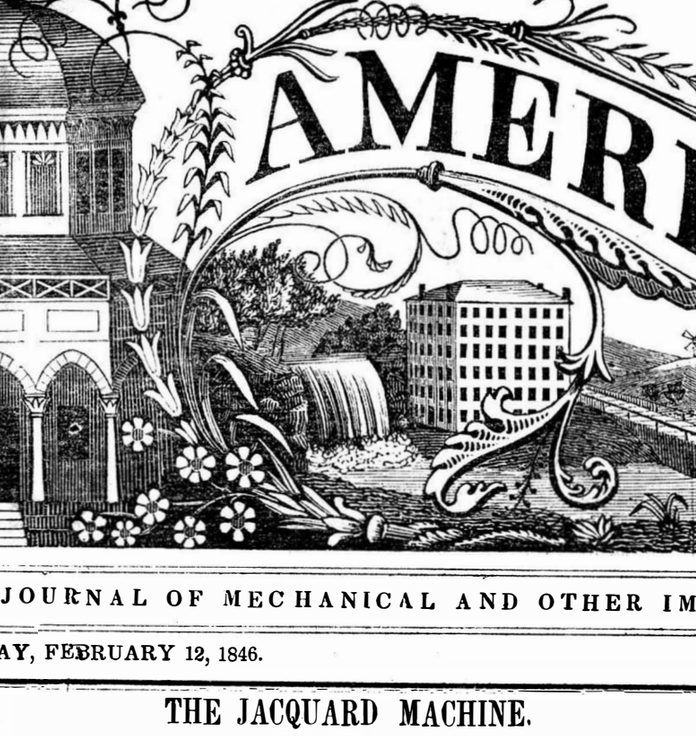

FIG. 2.




EXPLANATION.—Fig. 1. represents the plan, or vertical view of the reservoir with the wheel in the centre; Fig. 2 shews a side view or elevation of the same. The reservoir A A A A, is constructed of planks, supported by suitable frame work, and may be about eight feet square, and in height corresponding with the head or fall of the water. The wheel B being only about five feet in diameter, is placed central at the bottom of the reservoir, and is inclosed in another square box, d d d d. A circular aperture corresponding to the diameter of the wheel, is made through the first floor of the reservoir; but another floor (A A, fig. 2) extends over the entire area of the reservoir, immediately above the wheel; and through this floor is a gate, L, through which the water is admitted to the chambers, between the wheel-box and the sides of the reservoir, and rushing thence through oblique orifices, a a a a, (represented by dotted lines in the engraving) expends its force on the floats of the wheel, and passes thence out through the bottom of the reservoir. A single plank or sill, c c, extends across the aperture at the bottom, to support the bottom box or bearing of the vertical shaft on which the wheel is mounted. This water-wheel is the invention of Mr. Hiram Munger, of Chicopee Falls, Mass., and has been satisfactorily proved to give a power equal to 60 per cent. of the water employed, which is nearly double to that of the best re-acting wheels, and much greater than that of the best tub wheels in use.

## THE JACQUARD MACHINE.

Fig. 95




This engraving is one of a series, which appears in a new and excellent work, entitled "The Art of Weaving," by C. G. Gilroy, and presents one view of a French loom, or as it is termed, a Jacquard machine. The entire machine is somewhat complicated, and a full explanation thereof would occupy at least five or six columns in this paper, besides requiring several other engraving to illustrate the several parts and the mode of operation. The machine is capable of working an unlimited variety of figures and colors, as would appear from the fact that the night dress of Pope Boniface, which was woven in one of these machines, contained 276 different colors, so arranged and blended as to display the likeness of 276 heretics, each suffering under some species, of torture different from any of the others. Thirty different colors [requiring as many different shuttles] were employed in the manufacture of the coronation dress of Queen Victoria. We purpose presenting, in future numbers, a variety of intelligence on the subject of improvements in the art of weaving, with suitable illustrations, which our limited space will not accommodate on the present occasion.

The engraving illustrative of the extraordinary invention of the electro-self-acting helm for steering vessels, and which was intended for this No., not being finished in season for this, will appear in our next.

## PATENT LAWS.

(Continued from No. 21.)

SEC. 12. That any citizen of the United States, or alien who shall have been a resident of the United States one year next preceding, and shall have made oath of his intention to become a citizen thereof, who shall have invented any new art, machine, or improvement thereof, and shall desire further time to mature the same, may, on paying to the credit of the Treasury, in manner as provided in the ninth section of this act, the sum of twenty dollars, file in the Patent Office a caveat setting forth the design and purpose thereof, and its principal and distinguishing characteristics, and praying protection of his right, till he shall have matured his invention; which sum of twenty dollars, in case the person filing such caveat shall afterwards take out a patent for the invention therein mentioned, shall be considered a part of the sum herein required for the same. And such caveat shall be filed in the confidental archives of the office, and preserved in secrecy. And if application shall be made by any other person, within one year from the time of filing such caveat, for a patent of any invention with which it may in any respect interfere, it shall be the duty of the Commissioner to deposite the description specifications, drawings, and model in the confidential archieves of the office, and to give notice (by mail) to the person filing the caveat of such application, who shall within three months after receiving the notice, if he would avail himself of the benefit of his cavcat, file his description, specifications, drawings, and model; and if, in the opinion of the Commissioner, the specifications of the claim interfere with each other, like proceedings may be had in all respects as are in this act provided in the case of interfering applications. *Provided however*, that no opinion or decision of any board of examiners, under the provisions of this act, shall preclude any person interested in favor of or against the validity of any patent which has been or may hereafter be granted, from the right to contest the same in any judical court, in any action in which its validity may come in question.

SEC. 13. That whenever any patent, which has heretofore been granted, or which shall hereafter be granted, shall be inoperative or invalid, by reason a defective or insufficient description or specification, or by reason of the patentee claiming in his specification, as his own invention, more than he had or shall have a right to claim as new, if the error has or shall have arisen by inadvertency, accident or mistake, and without any fraudulent or deceptive intention, it shall be lawful for the Commissioner, upon the surrender to him of such patent, and the payment of the further duty of fifteen dollars, to cause a new patent to be issued to the said inventor for the same invention, for the residue of the period then unexpired, for which the original patent was granted, in accordance with the patentee's corrected description and specification. And in case of his death, or any assignment by him made of the original patent, a similar right shall vest in his executors, administrators, or assignees. And the patent so reissued, together with the corrected description and specifications, shall have the same effect and operation in law, on the trial of all actions hereafter commenced for causes subsequently accruing, as though the same had been originally filed in such corrected form, before the issuing of the original patent. And whenever the original patentee shall be desirous of adding the description and specification of any new improvement of the original invention or discovery, which shall have been invented or discovered by him subsequent to the date of his patent, he may, like proceedings being had in all respects as in the case of original applications, and on the payment of fifteen dollars, as hereinbefore provided, have the same annexed to the original description and specification; and the Commissioner shall certify, on the margin of such annexed description and specification, the time of its being annexed and recorded; and the same shall thereafter have the same effect in law, to all intents and purposes, as though it had been embraced in the original description and specification.

SEC. 14. That whenever, in any action for damages [for] making, using, or selling the thing whereof the exclusive right is secured by any patent heretofore granted, or by any patent which may hereafter be granted, a verdict shall be rendered for the plaintiff in such action, it shall be in the power of the court to render judgment of any sum above the amount found by such verdict as the actual damages sustained by the plaintiff, not exceeding three times the amount thereof, according to the circumstances of the case, with costs; and such damages may be recovered by action on the case, in any court of competent jurisdiction, to be brought in the name or names of the person or persons interested, whether as patentee, assignees, or as grantees of the exclusive right within or throughout a specified part of the United States.

To be continued.

THE NEW COTTON CITY OF MASSACHUSETTS.—The Newburyport Herald says—

The new city at Andover Bridge, of which so much has been said, is likely to be built up very speedily. The Atlantic Cotton Mills, which have just been incorporated, with a capital of $2,000,000, will commence immediately the erection of four or five large mills; and the Bay State Woolen Co., with $1,000,000, will immediately erect two large woolen factories. It was the original design of the founders of these enterprises, who look to the ultimate investment of not far from $20,000,000, to commence their works in New Hampshire, either at Manchester or at Garvin's Falls in Concord; but the restrictions which the New Hampshire Legislature insisted in imposing upon them, alarmed the capitalists who were to aid in the enterprise, so that they declined to come in unless the works were brought under Massachusetts' jurisdiction, and on looking about for a location, the projectors fortunately found in the site at Andover Bridge, quite as desirable a place as that which they at first intended to occupy in New Hampshire.

RESPECT FOR THE AGED.—The members of Congress appear, at times, to be swayed by an universal feeling of what is right and becoming—we may even say beautiful. An instance occurred during the allotment of seats among the members on Thursday, and is thus decribed: It happened that the name of Mr. Adams was almost the last drawn, and more than a hundred members could have chosen the very eligible seat which he has occupied for several years; yet, though many would have been very glad to have it, all passed it by from respect to his supposed wishes and convenience, until at last his name was called, and, with a smile of grateful satisfaction, the venerable ex President took possession of his old quarters.

A POOR BLIND GIRL.—A poor blind girl, in England, brought to a clergyman thirty shillings, for the missionary cause. He objected, "You are a poor blind girl, and cannot afford to give so much." "I am indeed blind," said she, "but can afford to give these thirty shillings better, perhaps, than you suppose." "How so?" "I am, sir, by trade, a basket-maker, and can work as well in the dark as in the light."

GUM ARABIC.—In Morocco, about the middle of November, after the rainy season, which begins early in July, a gummy juice exudes spontaneously from the trunk and principal branches of the acacia tree. In about fifteen days it thickens in the the furrow, down which it runs, either in a vermicular, or worm shape, or more commonly assuming the form of round and oval tears, about the size of a pigeon's egg, of different colors, as they belong to the white or red gum tree. About the middle of December, the Moors encamp on the borders of the forest, and the harvest lasts six weeks. The gum is packed in very large sacks of tanned leather, and brought on the backs of bullocks and camels to certain ports, where it is sold to the French and English merchants. Gum is highly nutritious. During the whole time of the harvest, of the journey and of the fair, the moors of the desert live almost entirely upon it; and experience has proved that six ounces of gum are sufficient for the support of a man during twenty four hours.

HOW TO SATISFY A CREDITOR.—There was a British officer, a Captain K——, well known in Portugal for his jocularity and borrowing propensities, who went through the Peninsular war, and also through a great deal of his own and other people's money in a very facetious manner. He had lived for some years on his wits, and the captain's were of the richest kind. A friend of his asked him how it happened that people who came to him for the payment of money lent him were always got rid of by him by a single whisper. "The secret," replied the captain, "is simply this; when a man approaches me with the evident intention of asking payment of money lent me, I never give him time to effect his object. I silence and astonish him with a request for a new loan, never under five times the amount of the former accommodation."

A DRUNKEN LAMP-POST.—As we were passing up Wood street the other night, we saw a fellow, who looked as though his clothes had been intimate with the gutter, holding on to a lamp-poast to keep his balance. As we passed him, we heard him muttering to himself: "Wall, I'm busted if this aint the strangest thing I ever heard off. Here's this cursed lamp-post a reeling and a pitching about as if it had the blind staggers.

EXTRAORDINARY FEAT OF A WOMAN.—On Sabbath evening, January 18th, a young woman of North Haven Conn., who was living at Meriden, jocularly proposed to walk to her home, a distance of 12 miles, after 9 o'clock, there being at that time much snow on the road, and the weather intensely cold. A gentleman present said he would give to her $500 if she would accomplish the feat. She at once accepted the offer, which she was careful to secure by a note before starting, she set out about 9 o'clock in the evening, and actually reached North Haven at 2 o'clock the next morning; having walked 5 hours through drifts of snow, over an unbroken road, during one of the coldest nights of this winter. The Courier vouches for the truth of this story, having the names of all the parties, and cautions gentlemen to be careful how they make promises to the fair and gentle sex.

SQUEEZING A LADY'S HAND.—An exchange paper says—"It is but lately that we understood the strange constructions that are sometimes put upon a squeeze of the hand. With some it is entirely equivalent to a declaration of love; this is very surprising, indeed. Must we take hold of a lady's hand like hot potatoes, afraid of giving it a squeeze lest we should burn our fingers? Very fine, truly! Now it has been our ancient custom to squeeze every hand that we get in our clutches, especially a fair one. Is it not a wonder that we have never been sued for breach of promise? We would not give a rusty nail for one of your cold formal shakes of the hand. Every person who extends one or two fingers for your touch, as if he were afraid of catching some cutaneous distemper, ought to be kicked.

MILESIAN IMPUDENCE.—A Glasgow merchant, a native of Ireland, bestowed charity the other day on a countryman of his own; but Pat, not being content with money, asked our friend if he had got any "*ould britches*" about him, to which he replied in the negative. "Then," says Pat, "if yer honor will tell me where you live, I'll call in the mornin' for them ould pair you've got on."

LUMBER FROM MAINE.—171,738,803 feet of lumber were surveyed at Bangor, Me. during the past season. This exceeds the survey of last year by between forty and fifty millions of feet.

GREAT BELL.—An English paper says the great Peter bell, in York Minster; is now safely and securely suspended in its own tower. The weight of the bell and its appendages, together with the frame is calculated to be twenty-nine tons, but the strength of the tower is equal to treble that weight. The bell is the largest in the Kingdom, being 5 tons heavier than "Old Tom," of Oxford, and seven tons heavier than the celebrated "Tom" of Lincoln. The cost of it is above £2000; its height, seven feet four inches, and its diameter eight feet four inches. It is placed, at a height of nearly two hundred feet diagonally in the tower, for the greater security of the building, and above three hundred cubic feet of timber have been used for its support. It may be rung with two wheels, and will revolve entirely if necessary.

A wet silk handkerchief, tied without folding, over the face, is an excellent security against suffocation by smoke.

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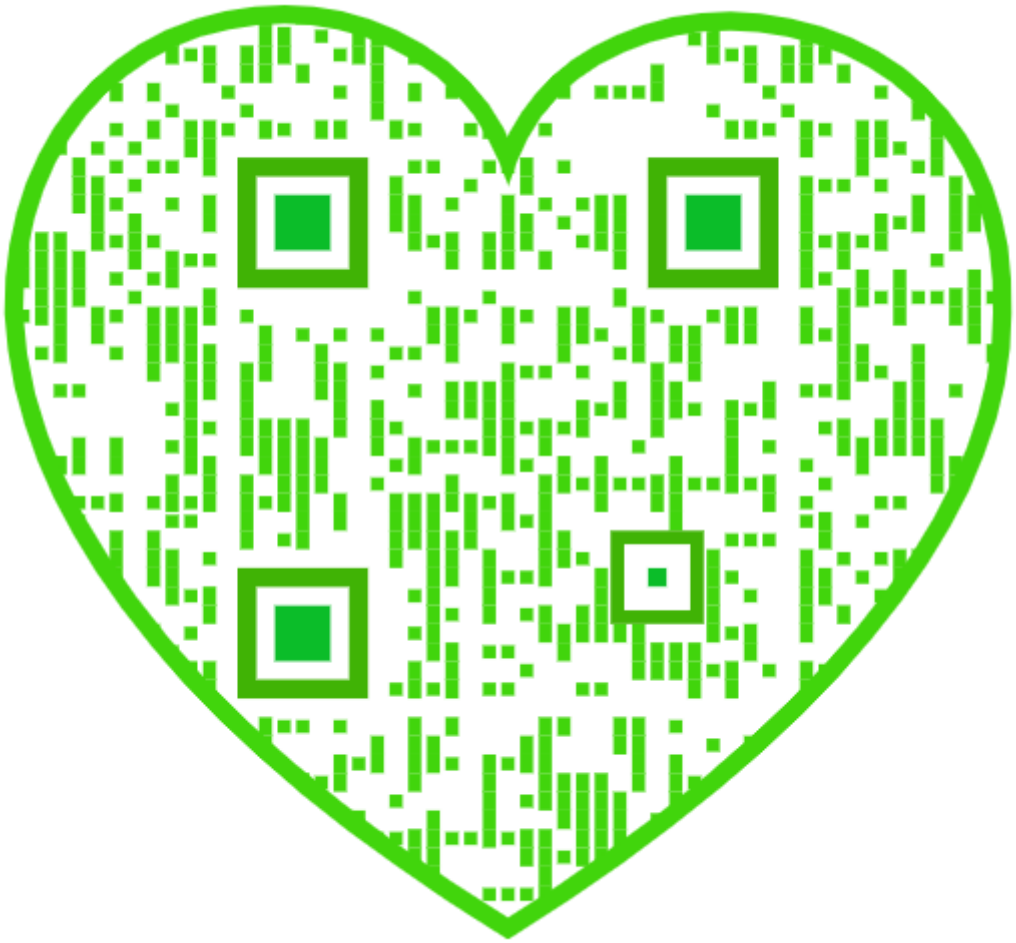
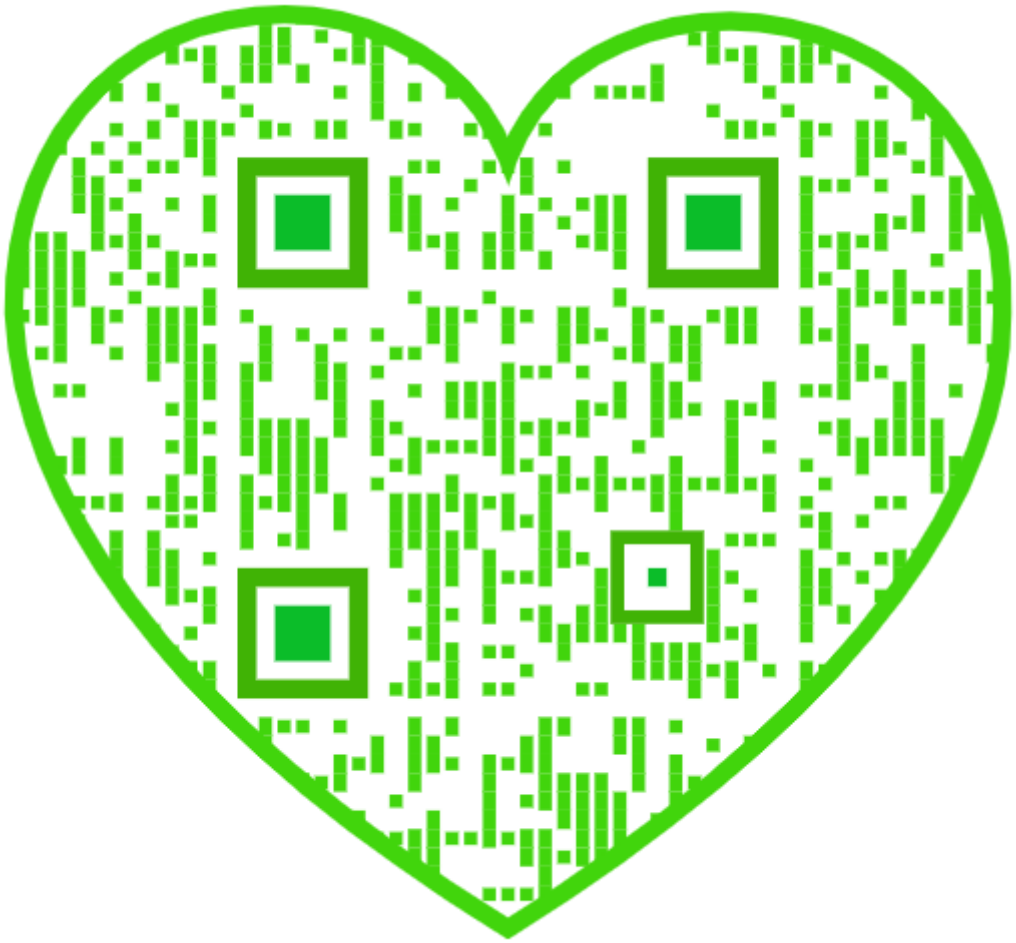




SCIENTIFIC AMERICAN

NEW-YORK, THURSDAY, FEBRUARY 12.

NUMBER 5 WANTED.—Any person having number 5 of this paper, may receive 8 cents per copy (double the original price,) by sending it to this office. 30 or more copies are wanted.

AGENTS WANTED.—Many travelling and local agents are wanted, to introduce and extend the circulation of this paper, in every principal village in the United States.

POST MASTERS.—Who receive this paper, will confer a special favor by mentioning the subject occasionally to scientific mechanics.

## Illustrations of Chemistry.

(Continued from No. 8.)

THE METALS.—PLATINUM is the heaviest substance known: is of a dull grey color, nearly as hard as iron, and very difficult of fusion, or oxydation. It is found only in the form of small grains; is soluble in a mixture of nitric and muriatic acid, in the proportion of one to three. It may be drawn into fine wire, which is stronger than either gold or silver; is capable of being alloyed with other metals, and preserves them from oxydation.

GOLD is the most malleable, ductile and brilliant of all metals, and is seldom found except in the metallic state. It cannot be oxydized by exposure to pure water or to the atmosphere, but is soluble in the nitro-muriatic acid, (nitric and muriatic combined) and readily unites with most of the metals. It also readily amalgamates with mercury, and on this account mercury is used for extracting it from the earth or rocks containing it.

MERCURY is a heavy metal of a brilliant white color, and fluid in the ordinary temperature of the atmosphere. It becomes solid at 39 degrees below zero, and boils at 665 above. It combines readily with gold, silver or lead, forming amalgums which are exceedingly useful in the arts. It may be readily dissolved in the nitric acid, in which form it is sometimes used as a white metallic wash for copper and other metals.

LEAD is next in the order of specific gravity, and is a very soft and fusible metal, and capable of great brilliancy, but on account of its affinity for oxygen, usually appears of a dull blueish color. It is one of the most useful metals in the arts, and is fortunately found in such abundance as to be afforded at a low price.

SILVER is the whitest of all metals, and ranks next to gold in malleability. It is susceptible of a beautiful polish, and preserves its lustre for a long time when kept free from acids. It is tenacious, and highly elastic when hammered, or drawn into wires, —is soluble in most of the acids, and is readily alloyed with gold or copper, but is nearly useless when alloyed with cheaper and more fusible metals.

EXPERIMENTS.—To a solution of platinum in nitro-muriatic acid, add an equal quantity of sulphuric ether, and after shaking the mixture, let it rest and the ether will be found to have taken the platinum from its solution, and rising above the acid may be poured off; any piece of iron work may then be washed over with this ether, and will have received a permanent coat of platinum, which will preserve it from rust.

Mix a small quantity of gold dust, or gold leaves with a handful of earth, so that the gold may totally disappear. Then add a few drops of mercury and grind it together with the earth, and then agitate the whole in a cup of water, and the mercury will have collected at the bottom. Next submit the mercury to a moderate heat, and it will be driven off in vapor, leaving the original quantity of gold at the bottom of the crucible.

Spread a drop of mercury over a piece of tin foil, and place thereon a piece of window glass. Keep them in close contact for twenty four hours, and the tin and mercury having amalgamated, will adhere to the glass, producing a perfect mirror or looking glass.

Expose some slips of thin sheet lead to the fumes of strong vinegar, and it will become coated at the surface with a white substance, which being scraped off and ground will prove to be pure white lead.

Dissolve a small piece of silver in diluted nitric acid and to the solution add a few grains of muriate of soda (common salt) and the silver will be precipitated in the form of a white powder. Pour off the acid, and add to the precipitate an equal quantity of tartrate of potash, (cream of tarter.) Any article of copper or brass being rubbed over with this paste becomes permanently coated with silver.

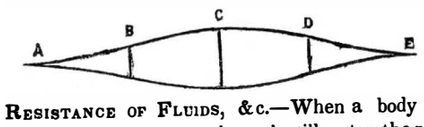
(To be continued.)

THE ART OF WEAVING.—This is the title of one of the most perfect and valuable works that has come under our notice for many days. The author, Mr. Gilroy, is not only practically acquainted with every branch of elegant weaving, as practised both in England and France, but is himself the inventor of several of the most perfect and improved fancy weaving machines that is known and used in those countries. The volume contains a complete series of instruction in all the variety of branches, from the richest carpet to the finest figured silks: also a variety of elegant steel engravings representing the latest improvements in weaving apparatus, in addition to numerous wood cuts, (a sample of which is seen on our first page.) This work is published and for sale by G. H. Baldwin, No. 35 Spruce street, and should be in the hands of every person in any way connected with the manufacture of fabrics of wool, cotton, or silk.

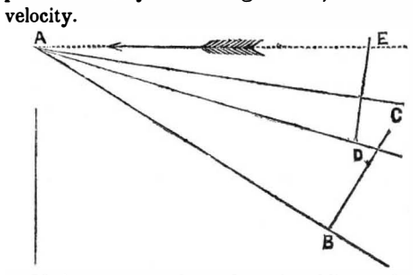
STRIKE.—The hand-loom weavers of the West Moyamensing, a community of operatives numbering between twelve and fifteen hundred, are now on a strike for half a cent a yard advance, on all fabrics which they weave.

## Science of Mechanics.

(Continued from No. 21.)




RESISTANCE OF FLUIDS, &c.—When a body is made to move in, or pass through still water, the resistance of the water against this motion, depends on the position, as well as the extent of the surface which encounters the fluid. The resistance of water against a plain surface at right angles with the direction of motion, and moving with a velocity of 16 feet per second, is calculated at about 500 lb. per square foot. But if the position of the surface be changed to an angle of 60°, the resistance will be reduced to 100 lb. per square foot, or one-fifth of that at right angles. The reason of this reduction of the resistance is, first, because only three-fourths as much surface is presented in the direction of the motion, and second, because the actual motion produced in the water which is displaced by the moving body, is only half as great as in the former instance, and consequently requires only one fourth as much force to produce it. Again, if the position of surface be changed to an angle of 30 degrees, the resistanco will be reduced to 42 lb. or one-twelfth of that in the first instance. Once more; if the position be changed to an angle of 10 degrees, the resistance will be reduced to 3 oz. per square foot, or about 1-2500 of that in the former instance. Hence arises the well known advantage which is derived from sharpness in the construction of steam-boats and sailing vessels. The best models of vessels for speed, are those of which both ends are alike, as is the case with the common whale-boats. If a boat is of equal depth fore and aft, it should be so constructed as to give the water the least possible lateral motion at first, but gradually increase the motion during the progress of the first fourth part of the boat: then as gradually allow this motion to subside, while the boat is passing another fourth of its length; and with the same gradation of motion, the water should be allowed to return to its original position, during the progress of the other half of the boat's length. An outline of a model of this kind is placed at the head of this article; and it will be observed that the most oblique parts of its surface, are at B, and D, while those at A, C, and E, are parallel to the direction of motion. There is however another figure, which as a model for speed, has considerable advantage over that above described, on account of the diminutive quantity of surface which is presented to the resistance of the water, at each extremity; we allude to the Pointed Spheroid, or Eliptic Spindle. This figure being round and tapering on a regular curve from the centre, and terminating in a point at each end, will encounter less resistance in proportion to its strength and buoyancy, than any figure known or that can be constructed. A boat, or float of this figure, thirty feet in length and fifteen inches in diameter—equal to a square foot—may be propelled with a velocity of 16 feet per second, by the application of less than 5 lb. continuous force, to meet and overcome the resistance of the water, even when loaded with 500 lb. weight, as we shall endeavor to show by a regular calculation, based on its extent and obliquity of surface, and resistance per square foot to be encountered. If a boat or other object is moving in water with a velocity sufficient to meet a resistance equal to 64 lb. per square foot, on a surface at right angles with the direction, the water which is actually encountered by this surface, is suppssed to be put in motion by the moving surface, with an equal velocity.




If the presented surface is oblique, forming an angle of thirty degrees with the direction of the motion, (A, B) the water encountered will be put in motion with one half of the velocity of the moving surface; of course the resisting pressure is reduced to one fourth, or 16 lb. per square foot. But this does not designate the actual resistance to the motion of the boat; for the pressurc of a resisting fluid on an oblique surface, is in a direction, (B, C) at right angles with said surface, which in this case wonld be at an angle of 120 degrees with the direction of motion; and as the resisting fluid is required to recede only one foot while the boat moves forward two feet, the actual resistance is reduced to 8 lb. per square foot. Again, if the moving surface is at an angle, (A, D,) of only fifteen degrees with the direction, the velocity produced in the resisting fluid will be only one fourth of that of the boat, and consequently, the resisting pressure—being as the square of the velocity—is reduced to one sixteenth of that on a square surface, or 4 lb. per square foot: and as the direction of the pressure, (D, E,) is an angle of 105 degrees with the direction, and the required motion of the resisting fluid being only one fourth of that of the boat, or, in other words, being required to move one foot while the boat moves four feet, the actual resistance of motion is only one fourth of the resisting pressure, or 1 lb. per square foot.—Thus it is seen that the resistance of a fluid on an oblique surface of 30 degrees is reduced to one eighth and on a surface of 15 degs. obliquity, to 1-64, or 1 lb. and of course we may calculate, that on a surface at an angle of 7 1-2 degrees, the actual resistance would be only two ounces per square foot

To be continued.

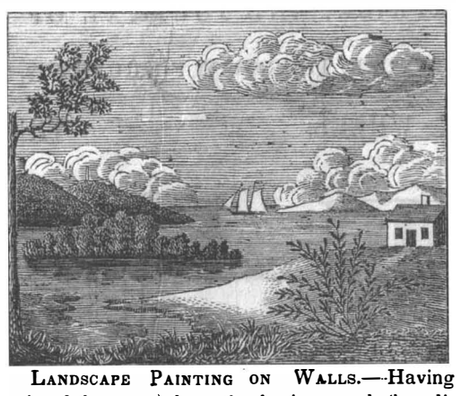
SINGULAR CIRCUMSTANCE.—The Louisville Couries states, that immense numbers of fish, different from those usually seen in the Ohio River, were floating down that stream in a torpid state, having been evidently affected by excessive cold. When exposed to heat they became lively. They must have fled from some of the upper ponds or small branches to escape the frost.

## The Magnetic Telegraph.

The line between Albany and Utica, and that between Philadelphia and Newark, are in full operation. The section between New York and Newark, has been delayed on account of the difficulty in extending the wires across the Hudson River.—Every effort to extend the communication *through* the water, has failed, and Mr. Kendal says, in a letter on the subject, "We must ask science to teach us how to stretch wires in safety, aloft in the air, and a mile in length, or we must beg commerce to permit us to raise pillars beside her path, on which to erect the tiny bridge for our invisible messenger." We have yet to learn what objections Mr. Kendall, or any other person, can present against our projected plan (illustrated in No. 10) of supporting the wires at any required height, by a series of revoloidal spindles, made of light materials and filled with hydrogen gas. The cost of floats of this description, of a buoyant capacity to support 50 lbs, will not exceed $50 each; and will not be subject to a force exceeding 5 lbs. each in the heaviest gales. We believe they will yet be adopted.

## The Art of Painting.

(Continued from No. 21.)



LANDSCAPE PAINTING ON WALLS.—Having painted the space above the horizon, as before directed, the practitioner may proceed to mature the principal design for the work, as will best accommodate the situation and circumstances; and the outlines of this design may be drawn upon the walls, with a small brush, attached to the end of a rod or staff two or three feet long; the brush being dipped occasionally in dilute sky-blue. As a general rule, a water scene,—a view of the ocean or a lake,—should occupy some part of the walls, where there is sufficient spece, and where such design will be seen to advantage. Other parts, especially over a fire-place, will require more elevated scenes, high swells of land, with villages or prominent and elegant buildings. On the more obscure sections of the walls, especially such as are expected to be partly obscured by furniture, high mountains, with cascades or farm-hills may be represented. Small spaces between the windows and the corners, may be generally occupied by trees and shrubbery rising from the foreground, and without much regard to the distance. The designs in this work, are usually classed in what is termed *five distances*, the first of which is called the foreground, and occupies the lower section. and is based on the dadoe line. The trees on this ground are usually drawn from three to six feet in height, and other objects in proportion. The second distance, (indicated by the cottage in the cut) generally includes all objects which are near enough to admit of full natural colors in the painting, and is the proper distance for representing hunting, military, or sporting scenes. Forest trees on this distance are ordinarily drawn six to twelve inches in height. The third distance (indicated by the island) is that in which objects are drawn on a scale of about one inch to ten feet, and in which the objects appear somewhat obscure by the distance. The fourth distance, (corresponding with the highland cape) is that in which the objects appear in a faint bluish tint, and on a scale of an inch to fifty or sixty feet,—the trees being hardly distinguishable. The fifth is the extreme distance, in which mountains and highlands appear of a pale blue, even in clear weather. It is not uncommon for one distance to extend gradually into another; but as each general distance, requires a peculiar set of colors, it is most convenient to class them in this manner. A correct knowledge of the general principles of this branch, is more important and more difficult to acquire by the learner, than the art of drawing and finishing individual objects. We shall proceed to describe the process of compounding and applying the principal foundation colors.

To be continued.

TRY AGAIN.—In No, 20, we proposed what we termed "A slight puzzle," to which we received several answers, as was shown in our last number. The problem was as follows:

"An orchard contained 36 trees, in six equal rows of six each. Six of the trees died, still there was an even number in each row both ways. If any of our readers will send a draft representing the order of the remaining trees, after the six were removed, we will furnish an engraving thereof in the succeeding number."

This was understood by some, to require merely that each remaining row should contain an *even* number, 2, 4, 6 or 8, and answered accordingly. But one answer from Mr. E. G. Chandlee, of Maryland, was received too late for our last paper, but goes beyond all that was required, and leaves the rows not only equal with each other, as was required, but also leaves an *even* number in each row. We now, therefore, offer a new problem on that ground as follows:

AN ACUTE PUZZLE.—An orchard consists of thirty six trees, in rows of six trees each. Six of the trees having died, were removed; but there still remained an equal number, which was also the even number four, in each row. If any of our readers will send a draft, (post-paid,) representing the position of the remaining trees after the six were removed, we will furnish an engraving of the same and give them credit in our next number.

BRIDGE OVER THE OHIO.—Strenuous exertions are making by the people resident in the neighborhood to obtain from Congress an act of incorporation for a company to construct a bridge over the Ohio River at Wheeling.

## New Inventions.

WROUGHT-NAIL MACHINE.—A Mr. Gray, of Middletown, Ct., has invented a machine for making wrought nails, which can be worked by one-horse power, and will turn out one hundred pounds per day. They are said to be as smooth as cut nails, and better than those made by the hammer. We have seen no particular description of the machine, but are informed that Mr. G. has applied for letters patent, and of course we may obtain a description from the Patent Office.

IMPROVEMENT IN GENERATING STEAM.—A French engineer has discovered an exceedingly simple means of curtailing the qnantity of coal hitherto required in the generation of steam. His principle, for which he has taken out a patent, is that of putting whale or other fish oil into the boiler, unmixed, or with more or less water. When the oil is at a temperature producing steam, water is thrown in, and steam is produced as fast as required by the machine, without the oil passing of in vapor, or decomposing. The saving in fuel is stated at from 40 to 50 per cent.

MACHINE IN SHIP BUILDING.—Mr. J. Watchman of Baltimore Md., has invented a machine for bending iron plates for ship building. It is formed by a combination of screws, the head of which has a socket point so that it may be turned to snit any curve. The lower bed of screws is first arranged to suit the pattern wanted, and then the upper ones run down or up to match. The upper plate with screws is raised, and the sheet heated and laid in, and is pressed between the two until cold, when it is ready for use.

LITHOGRAPHIC PRESS.—M. Nicolls, a French Artist, is said to have perfected a machine for Lithographic printing, by which one man may work off 2000 copies of delicate designs, or 20,000 copies of writing per day. We have seen a description, but can not afford space for it at present.

NEW WIND POWER.—A machinist at Cabotville Mass., has just erected a shop at that place, the machinery of which is propelled by wind, in a somewhat novel manner. A large wheel, measuring 14 feet in diameter, furnished with wooden sails, or floats, is placed upon a perpindicular shaft, on each side of which, in a room below, is an invention similar to window shutters, which when opened causes the wind to rush in, and rising sets the sails and wheel in motion, and produces a velocity equal to that of any water wheel. We have seen a beautiful model of this wind-wheel at the shop of the truly scientific machinist, Mr. A. French, 63 Centre st. The invention will be evidently very convenient to manage, whether it gives as much power as some other kinds or not.

A FIRE ANNIHILATOR.—A Mr. Philips of London, has introduced an apparatus for the instantaneous extinguishment of fires. The principle of his operation is, to project upon the fire a peculiar gaseous vapor, which has a greater affinity for the oxygen of the atmosphere, than the burning combustibles, and consequently extinguishes the fire by depriving it of the elemement, oxygen, on which combustion particularly depends. It is stated that in some recent experiments with this machine, an extensive and raging fire was extinguished as suddenly as the flame of a lamp is extinguished by a puff of the breath. If this statement is correct, we shall soon learn more about it; but shall not be disappointed if the invention does not succeed.

A HARD CASE.—A poor distressed German woman is now in prison in Buffalo on a charge of having left her infant at the door of a dwelling house. Her plea is, that for two days prior to leaving the child, she had not tasted food, and was not able to nourish it. She piteously begged that the child might be restored to her, but the heartless, unfeeling legal tyrants, preferred to augment her affliction by incarceration in a gloomy jail, separated from her beloved infant, instead of relieving the poverty which compelled her to leave it to the charity of others.

THE "NORWICH REPORTER."—This paper talks strangely wild—complains that we have *discontinued* sending duplicates, &c. Now we can assure our good friend of the Reporter, that we have never received but one number of the Reporter prior to last week nor any appearance of prospectus or notice of this paper. If the Reporter has indeed inserted our prospectus, we think the most proper "way to do business," would be to send us a copy containing it, before publishing a complaint on the subject.

THE BAY STATE FARMER AND MECHANIC'S LEDGER.—We have noticed this paper favorably, and still think it a very intelligent paper, but we do not like to see our original articles, inserted, and *leaded* as original in that paper without giving credit. This course will be likely to induce other editors to credit such articles to the B. S. F. M. L. instead of the Scientific American. As a general rule we insert no article exceeding three or four lines in this paper, in leaded type, unless it is either original or credited.

THE PASTORAL LIFE AND MANUFACTURES OF THE ANCIENTS.—In another column will be seen a series of notices, of this curious work, not repeated but continued from our last number. Few modern books have received so much praise from the American Press, and if our readers will give these notices an attentive perusal they will most probably be induced to procure the book itself.

FIRE IN VERGENNES, VT.—On the night of the 20th ult. the store of B. & D. C. Holcombs was consumed with its contents, including 12,000 in bank notes, which they had taken from the bank on the night previous. The entire loss is estimated at $60,000.

LION AT LARGE.—A young Lion, brought to New Haven from abroad, got loose during the passage, and made his appearance in the hold of the vessel, to the evident terror of the crew. He was lured to his cage by a piece of goat's flesh, and secured.

## VARIETY

Of the 356 inmates of the Lunatic Asylum on Blackwell's Island, 226 are Foreigners. Probably severe poverty and enstrangement from friends, to which many Foreigners are subjected, tends to produce insanity.

The Legislature of Michigan has fixed the pay of the members at three dollars per day for the first forty days of the session, and half price ($1,50 per day) thereafter during the session.

The Mayor of Chicago, Ill., is so much alarmed by the prospect of war, that he has called a public meeting of the citizens, and tarred the ends of all the piers to prevent the landing of the terrible red-coats.

It is said that those recently employed in taking the census of Boston, met with but three unmarried ladies, whose ages exceeded thirty—taking their own word for it.

We learn from a Newark paper that there is a factory in operation in that vicinity, called the Patent Cloth Company, where blankets, piano covers, and other goods are made without spinning or weaving.

Two cotton mills are now building at Rochester that will hold 14,000 spindles, and employ 600 operatives. They are both owned by Seth C. Jones, Esq., of that city.

The tax paid by the Camden and Amboy Railroad Company into the Sub Treasury during the past year, for passengers from Philadelphia to New York, is upwards of $20,000.

The editor of the Natchez Free Trader finds, by comparing dates of the river news below and above, that the Mississippi is up at both ends, and down in the middle.

The King of Bavaria has issued a decree, ordering that in future all persons killed in duels, or who have committed suicide, shall be interred without religious ceremony.

The Cherokee Advocate says, that between four and five hundred Cherokees attended a Temperance Meeting on Christmas day. The cause of temperance is becoming popular in that nation.

The Boston Mail, in speaking of the requisite qualifications of the conductor of a railroad train, in case of a severe snowstorm in a wtnter's night, mentions that of *coolness*. A bright idea that.

The following peculiarly orthographic order was recently sent to a grocery in Raleigh N. C. "Mr—sr ples sen me gallon wiscah by the negro boy dave and let it be gud, and yu wil plege yu frind.

The accumulation of moss on the roofs of houses may be prevented by sprinkling lime, or common wood ashes, on the upper part of the roofs once or twice a year.

We saw a fellow the other day making love to a stone post. He made out to snatch a kiss after considerable coaxing and courtseying. He was evidently in the *spirit* land.

The slave business appears to be brisk at Charleston, S.C.; no less than 349 men, women and children, were recently advertised for sale in a single paper of that city.

The editor of the Albany Knickerbocker congratulates himself that he has reached the top of Winter hill, and has commenced sliding down on the sunny side, into the green fields of Spring. Stand from under.

Twenty four thousand, seven hundred and eighteen dollars were paid into the Land Office at Green Bay Wis., during the month of October last, principally by actual settlers,—hardy pioneers.

The Boston Whig says that thirty petitions for railroads were presented last week in the House of Representatives. Of course those Yankees will *go ahead*.

Bear meat, says an exchange, was sold at Albany a few days since, for fifty cents per pound. It does not say what price *bare bones* command at the same place.

The English steam frigate Terrible, of 1800 tons burthen and 800 horse power, said to be the largest man-of-war steamship in the world, has just been put in commission.

The London papers contain reports of experimental trips on different railways, for forty-three miles, with fifty tons, drawn by one engine. The average rate was 47 and a half miles per hour.

The National Academy of Design has offered its commodious gallery in the Rotunda, in the Park, for the exhibition of the Inman paintings. Near 5000 season tickets have been already sold.

The practice of fettering unruly wives and chaining them to the kitchen floor, is one of the latest improvements introduced in this city, under the sanction of the city magistrates.

Jackson, the American Deer, who undertook to run eleven miles in an hour, at New Orleans, for $2000, lost the race by ten seconds.

A schooner of 200 tons is being built at Maumee city, O., to be completed and put in service early in the spring. She is to sail from Oswego.

The Hibernia brought over, on her last voyage, $150,000 in specie, and the duties of her freight ammounted to over a $100,000.

The entire population of the globe is estimated at 900,000,000. It would take a long time for one to get acquainted with them all.

An extensive establishment for manufacturing railroad iron is being fitted up by Mr. Cooper, at Trenton, and will soon go into operation.

After a silence of 80 years Mount Hecla, Iceland, is again belching forth volumes of fire and smoke.

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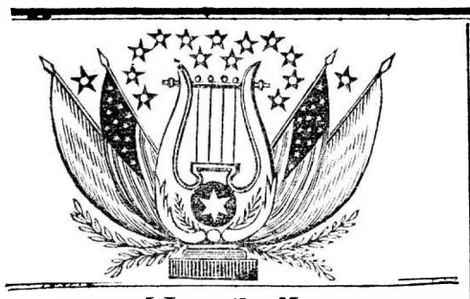


## I Love the Man.

I love the man who calmly rests,
When wealth and friends are flown,
Who peace and love those heavenly guests,
Securely makes his own;
Who never looks to earth for bliss,
Whose treasure is the skies,
To whoom keen sorrow's dark abyss
Brings no depressive sighs.

I love the man who kindly bears
The haughty tyrant's frown;
Alike to friend and foe he wears
The look of calm renown.
The proud contempt, the conscious slight,
Do not affect his soul;
He's firmer in the truth and right,
As passion's billows roll.

I love the man who freely gives,
As heaven has blessed his store—
Who shares the gifts that he receives
With those who need them more;
Whose melting heart of pity moves
O'er sorrow and distress—
Of all his friends, who mostly loves
The poor—the fatherless.

I love the man who scorns to be,
To name, or sect, a slave—
Whose soul is like the sunshine, free—
Free as the ocean wave;
Who, when he sees oppression—wrong—
Speaks out in thunder tones—
Who feels with Truth that he is strong
To grapple e'en with thrones.

I love the man who shuns to do
An action mean or low—
Who will a noble course pursue
To stranger, friend, or foe—
Who seeks for justice, not for gain,
Is merciful and kind—
Who will not give a needless pain
In body or in mind.

I love the man whose only boast
Is wisdom, virtue, right;
Who feels if truth is ever lost,
His honor has a blight;
Who ne'er evades, by look, or sign;
In every place the same;
Methinks the glories are divine,
Which cluster round his name.

## The Ladies.

I love the ladies, every one—
The laughing, ripe brunette—
Those dark eyed daughters of the sun,
With tresses black as jet.
What rapture in their glances glow,
Rich tints their cheek discloses,
And in the little dimples there,
Young smiling Love reposes.

I love the ladies, every one—
The blonde so soft and fair—
With looks so mild and languishing,
And bright and golden hair;
How lovely are their sylph-like forms,
Their alabaster hue,
And their blushes far more beautiful
Than rose-buds bathed in dew.

I love the ladies, every one—
E'en those whose graceless forms
Are rugged as the oak that's borne
A hundred winters' storms—
The young, the old, the stout, the thin,
The short as well as tall—
Widows and wives, matrons and maids,
O, yes, I love them all.

I love the ladies, every one—
None but a wretch would flout 'em,
This world would be a lonely place
If we were left without 'em;
But lighted by a woman's smile,
Away all gloom is driven,
And the most humble home appears,
Almost a little heaven.

I love the ladies every one—
They're angels all, God bless 'em,
And what can greater pleasure give,
Than to comfort and caress 'em.
I call myself a temperance man,
So I'll drink their health in water—
Here's to the mother's, one and all,
And every mother's daughter.

TRIAL OF COURAGE.—A duel took place a few days since, in the vecinity of Columbus Ohio, between two would-be gentlemen. The weapons used were pistols of the biggest kind—but the considerate seconds took care that there should be no "cold lead" included in the arrangements! The result was an exchange of shots—a considerable waste of powder—very much smoke—a good deal of fright—and no loss of blood.

LOWELL GIRLS.—A spruce young fellow in gallanting one of the operatives, and commenting on a late turn out, remarked that he wished he could maintain all the factory girls for six months. His fair friend quietly replied, "I wish you were able to maintain one of them."

DOUBLY SMITTEN.—An exchange relates that a gentleman was deeply *smitten* by the appearance of a lovely girl in Ohio, and on attempting to kiss her, he was again smitten by her fist, which knocked him down.

SPEED.—A locomotive engine, about to convey some English workmen along the railroad to a certain point, set off of itself from Blois, France, without an engineer or stoker, and ran with such velocity that it went a distance of seven leagues in ten minutes.

THE PASTORAL LIFE
AND
## Manufactures of the Ancients;

1 vol. 8vo., pp. 464. New York: Harper & Brothers.
**Price $3,00**
Continued from last number.

This elaborate production comprises a rich fund of new and curious information respecting the social state, domestic manufactures and attainments of the ancients, derived from rare and in most instances, sources wholly inaccessable to the general reader. Few works will be found to possess stronger claims to originality.—*N. Y. Com. Adv.*

We venture to say there is scarcely any person, of the least pretentions to intelligence or literary taste, who, if he once read a page, will deny himself the possession of a copy of this remarkable, this unique production.—*Anglo American.*

This volume is beautifully bound, and illustrated with elegant engravings, and the matter is full worthy of its dress. Its information will be interesting to all, and especially the the student of the Bible, throwing as it does much light upon passages of Holy Writ.—*Boston S. S. Teacher.*

Although a book of much learning and research, very handsomely illustrated, it is a book for ladies, and above all others, an elegant and endearing present from a husband to a wife, a brother to a sister, and yet will charm and interest the giver in its perusal, awakening contemplations of the purest and most delightful character.—*Peterson Intelligencer.*

A truly splendid volume; and all that its beautiful exterior, and embellishments give promise of, is more than realized in the exceeding attractiveness and value of its contents. It gives a condensed and sketchy account of the origin of the principal fabrics and their manufacture, from the remotest traces in history, and presents in a brief way the results of great erudition, and much careful research. The progress, present stateand utility of the various Arts of Manufacture are there presented, so that the reader obtains a summary view of the history of these Arts, and the manufacture of fabrics which would be hardly accessible otherwise. The part which treats of Sheep, and the nature of the pastoral life of the Ancients, is full of interest and written with the genuine spirit of true poetry. The volume is embellished with ten steel engravings, and, taken together, forms an invaluable treatise on an important, but much neglected department of Biblical and classic archœology.—*Evangelist.*

This is an interesting and elaborate work,intended to restore a portion of the true history of mankind, or in other words, to trace the origin and progress of the Useful Arts through the Literature of antiquity.—*New Bedford Mercury.*

It cannot but meet a ready sale.—*Mobile Adv.*

It has long been known to civilized nations that as far back as the remotest ages of the world, the arts flourished, and that great and beautiful creations had existed, of the nature of which but little has been imparted. The knowledge, however, that has come down to us, has tended to stimulate the intelligent minds of the present and less remote ages, to greater and greater efforts for further exploration and investigation. The present work is full of this rare information, which is alike copious, detailed and varied.—*Boston Times.*

We would fain add a paragraph in relation to the pastoral life of the ancients; a subject which forms one of the many interesting topics of this welcome book. We cannot, however, defer to a future opportunity an expression of our extreme gratification with the entire work, and a hope that it will be appreciated by the reading public in a manner in some degree commensurate with its merits.—*True Sun.*

This is a work of singular and novel caste, one of very extrordinary labor and research, and one, we hesitate not to add, of abounding interest and value. Each page attests the patient and arduous toil of the author, in his diligent collection of facts and illustrations, derived from an ulmost incredible number of erudite authorities, which are so admirably arranged and digested as to impart to the volume; a remarkable degree of unity and completeness thus presenting a vast accumulation of important information, to a great extent new, upon the above topics. One of the leading objects of this work appears to be to supply a chasm, long acknowledged to exist in the domestic history of the nations of antiquity, a feature peculiarly interesting to all intelligent readers, and which we consider ably accomplished by the work before us. So attractive and instructive is the information it imparts that we feel persuaded that there would be found few who, even on a slight glance at it, would deny themselves the possession of a work so acceptable and rare. The elegant style in which the publishers have issued the volume—beautifully printed, and embellished by a series of curious and unique engravings on steel and enclosed in a richly ornamented cover—would alone win for it a welcome to the library of every person of taste and intelligence.—*National Intelligencer.*

Poets and historians seem to have been laid under contribution, to furnish information for the above work, and not a book of past or present appears to have been left unsearched for materials to add to its value.—*Presbyterian.*

The work has evidently been prepared with great labor and care, and we cannot doubt that it will command a very wide sale. It certainly deserves it.—*Knickerbocker.*

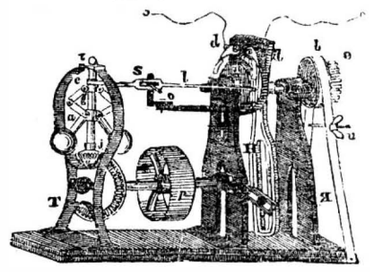
It treats of matters of great interest and importance to the Farmer and Manufacturer. It is evidently the result of extensive and laborious research.—*American Traveller.*

This is a very valuable book. The records of ancient history have been chiefly consulted for facts and incidents which portray the vices of mankind—the ravages and desolations of war, the conquest and subjection of nations, and the heartless despotism of conquerors. Incidents and notices of the habits and avocations of domestic life, and the progress of the arts, which mark the progress of civilization in the masses, are but sparely scattered over the pages of ancient history, and it was a heroic design to gather up and present them to the public in a form available to readers whose occupations do not allow time for elaborate research.

The history of the substances from which man has learned to procure covering and defence against the inclemencies of the weather, and at length to adorn himself in the habiliments which mark his attainments in civilization—the change from savage to civilized life is fraught with more useful knowledge than all the records of war, and the memoirs of the mighty chieftans who have deluged the earth with blood, and destroyed the fruits of the patient toil and humble labor of the husbandman and the artizan.—*N. Y. Chistian Advocate.*

THE GREAT RAILROAD PROJECT.—Whitney's Railroad is making a stir in Europe. A correspondent of the Washington Union, writing from Bremen, says he has sent a copy of the gigantic scheme to a member of the German Diet, suggesting that it should be forwarded to the Emperor of Russia, through Count Nesselrode, with the view of inducing him to extend a railroad from Moscow to the confines of China.

## Scholfield's Improved Patent
REGULATOR.



This Regulator possesses peculiar advantages over all others, for regulating the motion of water wheels, especially those whose motions are liable to be suddenly disturbed.

In order to appreciate its merits, when compared with others, it will be sufficient if we explain its principal characteristics, and modes of operation, together with that of the power by which such wheels are operated.

It is well known by those who are conversant with the subject, that it requires a considerable time for a wheel in motion, to exhibit the full effect due to the addition or diminution of water; and more especially in those wheels that operate by the gravity of the water in the buckets; this arises from the time required to fill or empty the buckets, and the inertia of the wheel and machinery to be overcome. It has been the aim of the Inventor to adapt his Regulator to those peculiar circumstances of water wheels, for which, provision is made by no other Regulator in use; the time required for a wheel to exhibit the full effect due to an addition or diminution of water, may, under ordinary circumstances, be stated at from one half a minute to two minutes.

Now the common Regulators without any exception, are so constructed as to move the gate by a continuous motion during the time the wheel's motion varies from the required velocity; and besides it sometimes requires some force to disengage the gearing of the regulator when in action, thereby causing it to act on the gate even after the motion has passed the required point. This, as should be expected, produces a re-action or contrary action of the Regulator on the gate. For all the motion communicated to the gate during the time of filling or emptying the buckets, and overcoming the inertia of the wheels, &c., and also of procuring the additional force of gravity, or centrifugal force of the governor sufficient to disengage the gearing from the gate is redundant, and carries the motion beyond the required point, which it only reaches, or at which it ultimately settles, by a series of oscillations above and below. And in order that this oscillating effect may not be very injurious, it is necessary that the Regulator should be so geared as to communicate a very slow motion to the gate, thereby requiring a considerable time to rectify a disturbed motion of the wheel.

Now, to remedy this inaccuracy, as far as practicable, I have constructed my Patent Regulator so as to move the gate suddenly at intervals of several seconds, and not with a continuous motion; and the motion communicated to the gate at each interval is in proportion to the variation of the motion from the required velocity, at the moment of such interval; and according to its construction there is no tendency to continue it in gear after the motion has arrived at the proper point. The effect of this arrangement is, that the gate may be moved through a much greater space in a given time than in the usual mode; especially where there is much variation of motion, it may usually be moved from three to four times as fast with this as with other kinds, without the danger of carrying it too far; for as it approaches the required velocity, the motion communicated to the gate becomes less and less, so that during the last moments of its action its motion may be even slower than that of the ordinary kind.—Hence it will be perceived, as practically it is proved, that a variable motion may be regulated in a much shorter time, and with greater accuracy with this Regulator than with any other kind in use.

This regulator is put in operation by a belt on the pulley P, on the lower horizontal shaft; on one end of this shaft is a bevel gear, driving the governor G; and on the other end is a crank in which is placed a stud, which, as the shaft revolves, passes up and down in the slot in the pendulous lever H, which gives to this lever a reciprocating motion, back and forth on its bearing, on the upper horizontal shaft, on which it is loosely fitted. At the top of this lever are two studs, on which are fitted catches or dogs, *d*, which, when they are allowed, take hold of the teeth in the cog, or ratchet wheel, over which they reciprocate, carrying the wheel and shaft to which it is attached, along with it. On each of the dogs, *d*, is a finger extending downward from the side, below the surface of the ratchet wheel, and rests on the surface of a guard wheel, *n*, whose protecting surface is of just sufficient length on its periphery to sustain the fingers and support the dogs through the whole range of their reciprocating motion, when in a central position. This guard is fitted loosely on the same shaft with the lever and ratchet wheel as its centre of motion, and is moved by the expansion and contraction of the governor, *g*, as a result of the centrifugal and gravitating force, through the medium of the lever, *l*, and is thereby always retained in such position as the governor, which is a true index of the velocity, determines.

Now it will at once be perceived by this arrangement, that if, when the governor is in a medium state of expansion, the guard just sustains the dogs during their reciprocating motion, and prevents them from taking hold of the ratchet wheel; then if the motion varies so as to cause a partial deflection in the governor, this guard will thereby be carried a little to one side, so that the projecting finger on one of the dogs, will pass off at the end of the guard near the extremity of its vibration, and suffer the dog to take hold of the ratchet, causing it to move along with it; and the greater the variation of the motion of the wheel from the required velocity, the sooner at each vibration will the dog commence its action on the ratchet, and consequently the greater will be the motion communicated thereto. This principle of action is the same whether it is above or below the required speed; but when the motion is just, no movement is communicated to the ratchet. The machine is made to act on the gate through the medium of suitable gearing, connected with the cog-wheel, *e*, on the same shaft with the ratchet and lever. *b* is a friction strap of band or hoop iron passing over a friction pulley on the same shaft; this is kept of a suitable tension by the thumb-screw, *u*, to counteract the natural tendency of the gate to move of itself. Lines are attached to the dogs, which may be conveyed to any part of the mill, by means of which they may be raised, so as not to take into the ratchet wheel; which is in effect throwing the machine out of gear, when the gate may be opened or closed in the usual way, at pleasure.

The subscriber usually builds five different sizes of these Regulators, indicated by numbers comencing at the largest size, which is called No. 1, &c.; they are built in a neat and compact form, and printed directions accompany each machine, which will enable any mechanic to put them in operation; as a general rule the different numbers are adapted to different sized wheels, as follows;

For over-shot or breast wheels, 3 feet buckets, No. 5; 5 or 6 feet buckets, No. 4; 6 to 10 feet buckets, No. 3; 8 to 15 feet buckets, No. 2; 12 to 20 ft. buckets, No. 1; greater than 20 feet, No. 1 extra.

Several hundred of these machines are already in operation; the patentee having put more than one hundred in operation with his own hands, is enabled to warrant them in all cases where the directions are strictly followed; they are built only by the subscriber, who has numerous testimonies of their superiority over all other kinds, by many of the best mechanics in the country.

A silver medal was awarded for one of these machines, at the annual fair of the American Institute, in New York, in 1841; diplomas have also been awarded from other similar institutions.

In addition to this the subscriber has made an important improvement in the steam engine governor, by which the oscillating effect is in a great measure remedied, and by weich its connection with the valve is momentarily adjusted to the intensity of steam and power of machinery; thereby bringing the engine to work, ultimately, with precisely the same velocity, although the intensity of steam or quantity of machinery may vary.

This improvement is appreciated and patronized by some of the best mechanics in the country.

These machines are furnished to order, and sent to any part of the United States, by N. Scholfield, patentee, Norwich, Conn. The patentee is determined to prosecute all infringements on the patent right, which come to his knowledge.

The following agencies have been established for the sale of these machines:—Jones, Denney & Ward, Boston; V. J. Bates & Co., Providence, R. I.; Charles Schenck, New York city; D. Wight & Son, Troy, N. Y.; R.M. Vansickler, Albany, N.Y.; S.C. Bemis, Springfield, Mass.; Denslow & Beach, Hartford, Conn.; Joseph B. Hughes, Philadelphia; Wells Chase, Band Towner Dunlap & Co.; Baltimore.

## Railroad Intelligence.

CENTRAL, VT., RAILROAD.—The Winoosk Turnpike from Montpelier to Burlington, has been purchased by the R. R. Company. The route is located for the whole distance from the Connecticut River; the Northern route having been preferred.

HUDSON RIVER RAILROAD.—The route for this road has been surveyed the whole distance between New-York and Albany, and a report thereof has been published, which represents the route more feasible aud favorable than was anticipated. This route will accommodate the cities and villages on both sides of the river, and will probably become the greatest business road in the union. By this road, when finished, a passenger may leave Albany or New-York at 7 in the morning, spend four hours in business at either city, and return home the same evening. The estimated cost, including cars and buildings is short of six millions, and the estimated nett income, about $500,000 at the first, which will constantly increase. A charter has been applied for, and there appears to be a determination to carry forward the enterprise with vigor.

CONNECTICUT RIVER RAILROAD.—This Company has petioned for leave to extend their road to the Vermont line.

THE NORTHERN R. R.—From Concord N. H. The excavation of this road is in good progress. The contractors on one section have purchased at an expense of $6000 an excavating machine, usually termed the "Steam Paddy." This is not strictly the Montreal road, though it is contemplated to uuite both roads for some distance.

THE HOUSATONIC RAILROAD is to be improved by about 10,000 tons of heavy T rail, which is in progress at the Montour Iron Works, in Danville, Pa.

THE TRENTON RAILROAD between Philadelphia and Briston is to be relaid, in a superior manner, with wide track and heavy rail. Other improvements on that road are also contemplated, especially in regard to the turn-outs, the awkwardness of which have, for five years past, been a shameful disgrace to the country.

THE MONTREAL AND ATLANTIC RAILROAD.—The prospects, of this enterprise appear very favorable at present, and the work is expected to be put in progress on the whole line in the Spring.

GREAT WESTERN RAILROAD.—The survey of the rout for this road, between Niagara and Wisconsin was commenced two or three weeks since, by two parties, under the direction of two competent engineers.

NEW RAILROAD ROUTE TO BOSTON.—The Middletown, Conn., people are moving for the construction of a Railroad connecting the Hartford and New Haven railroad at Wallingford, (12 miles North of N. Haven,) with the Norwich and Worcester Railroad at Danielsonville or Plainfield, about 15 miles from Norwich—They claim that this will be the shortest, quickest and best route between N. York and Boston. The Middletown Sentinal states that an engineer has been engaged for the last month or two in exploring the country, and that his report is so exceedingly encouraging, that the Railroad Committee have ordered the immediate survey of the route leading from Middletown through Willimantic, to Danielsonville, or Plainfield, on the Norwich and Worcester Railroad.

PHILADELPHIA AND LAKE ERIE RAILROAD.—The route via Sunbury, with a branch to Pittsburg is considered the surest and safest project for Philadelphia capitalists. It offers inducements to capitalists superior to any other route to the Lakes on the one hand, and the Ohio river on the other.

Movements are also being made, and meetings held on the subject of railroads from Lake Ontario to Washington N. Y.—another from Nashville Ten. to the Georgia line:—one from Rochester to Lockport N. Y., also one called the Greenville road in North Carolina.

TAR, PITCH, AND TURPENTINE.—A South Carolina paper states that the turpentine business was never more prosperous. The price of land has advanced 200 per cent., and "*all the niggers have riz*" to an average price of $550. One man, who had employed only four negroes, in the business, realized and pocketed $1900, for his produce of the season.

TETOTAL RAILROAD CO.—The Mass. Dew Drop says that the directors of the Fall River Railroad have decided, by vote, that no ardent spirits shall be transported over their road. An example worthy of imitation.

## Implicit Obedience.

"Cast the net on the *right* side of the ship, and ye shall find." This command is recorded in the 21st chapter of John, 6th verse; and in connection with circumstances which plainly admonish us to obey all the commands of Christ, implicitly, and without either conferring with flesh and blood, or consulting expediency, according to our feeble and imperfect views thereof. The disciples, in this instance, had been toiling all night in vain, and might have reasoned with themselves on the absurdity of expecting any better success on the right side of the boat, than on the left side. But without stopping to consult visible prospects, they obeyed the word of even an apparent stranger, and now they succeeded to a degree that greatly astonished them. Prior to this, they had been simply but honestly following the dictates of their own judgment, without any injunction, and consequently without any special obedience: but now, they were acting in implicit obedience to the word of one who stood on the shore; and they succeeded. It is at this day a common and general practice with professed christians, to consult what they term discretion, in obeying the injunctions of the gospel. They can select a few of the scripture precepts, which they find it very convenient to obey, such as providing for their own household; refraining from praying in the corners of the streets; and singing (or hearing sung) psalms. They will even give to the poor—such things as they have no further use for; and some will pray several times in a day. if paid a libera. salary for so doing. But when the more plain and pointed injunctions, such as "Lay not up for yourselves treasures upon earth;" "sell that ye have and give alms;" "He that hath two coats, let him impart to him that hath none;" "From him that would borrow of thee, turn thou not away," &c., are presented, they with one consent appeal to discretion, and reason with themselves that it would be downright presumption to neglect to lay up something for old age,—to give away their property to others—to lend to people who would never repay. No, no, say they, "the Lord did not mean so when he said it; or probably the scriptures were not correctly translated." And with regard to the other injuncttons, "Resist not evil;" "He that taketh away thy coat, forbid not to take thy cloak also," and "of him that taketh away thy goods, ask them not again," it is plain, say they, that if we follow a course of implicit obedience to them, we shall be robbed of all our property, reduced to begging, and probably to starvation, A highly favored Apostle has very plainly said, "Love not the world, neither the things that are in the world; (for) if any man love the world, the love of the Father is not in him;" and many other things of similar import; but where is the fashionable christian who evinces by his ordinary conduct, that he *does not love the things*—honor, reputation, respectability, and at least a moderate share of wealth,—of this world? If, then professors have not sufficient confidence to obey the divine injunctions for fear of evil consequences, it is not surprising that they should be left to complain of coldness, darkness, and doubts. But let all those who prefer the divine love of God to the desirable things of this world, remember the never-failing promise, "If ye keep my commandments *ye shall abide in my love.*"

MEEKNESS.—This is so great a duty, that Christ makes it the distinguishing character of his disciples. None is more likely to become possessed of it than he who makes it a business to consider its various excellencies. Some even of the heathens were celebrated for this virtue. To possess it is to have the mind which was also in Christ Jesus. It prevents the great evils produced by sudden anger, it secures discretion, and adorns the gospel; melts the offender, and wins more upon him than all other means. To be meek is to be like God, and confers a greater honor than the greatest victory. It brings peace and satisfaction to the soul; and the blessings it entails are innumerable. These things rightly considered would tend to promote this most amiable virtue.—*Selected.*

EXPERIMENTAL PIETY.—Nothing is more easy than to say divinity by note, and to discourse of spiritual matters from the tongue or pen of others; but to hear God speak it to the soul, and to feel the power of religion in ourselves, and to express it out of the truth of experience within, is both rare and hard. All that we feel not in religion, is only hypocrisy: and therefore the more we profess the more we sin. It will never be well with me, till in these great things I be careless of others' censures, fearful only of my God's and my own; till sound experience have really catechised my heart, and made me know God and my Saviour otherwise than by words. I will never be quiet till I can see and feel and taste the grace of God.—*Bishop Hall.*

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A WHITE SLAVE.—A lad sixteen years of age, of very light complexion, blue eyes and auburn hair, was recently sold in company with several colored slaves at Natches Mis., although the opinion was freely expressed by persons present, that the boy was of purely white descent.

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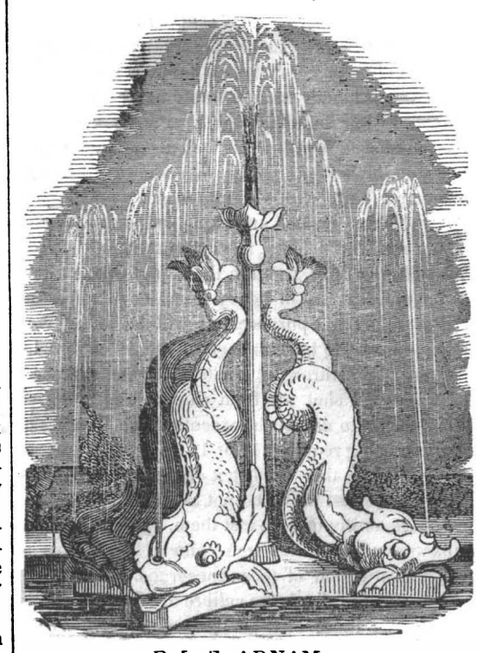

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On the most extensive scale.

L. C.'s facilities for manufacturing Pocket Books, or Wallets, for the supply of those wholesale dealers who buy to sell again by the gross or dozen, are unequalled, he having employed for the last ten years from 50 to 270 workmen. His present well regulated system of *division of labor*, enables him to supply these articles at a very great reduction, at least one third less than former prices.

Strops retailed at from 50 cents to $1,00 each, varying only in outward finish and size—warranted to please or the money returned. jan22.

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## Lap-welded Boiler Flues.

PROSSER'S PATENT.

THESE Flues alone, are now used in their marine engine boilers, by the French and English governments, and also by companies and private individuals for marine, locomotive, and stationary boilers where rapid generation of steam, with economy of fuel, weight and stowage is an object of consideration.

They can be obtained only, of the Patentee, at No. 6 Liberty street, New York. THOS. PROSSER,
Nov 19tf. Patentee.

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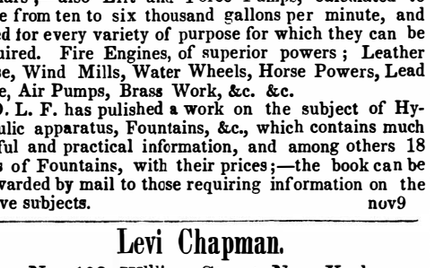

AT HENRY ROWNTREE'S old established *Tool Store*, at the Corner of Chambers and Chatham streets, Mechanics, Farmers, &c., will find an assortment of good Tools, suitable for almost every branch of trade.

H. R. feels obliged to his many customers, of every class, for their past patronage and hereby assures them that no pains shall be spared to procure the best articles in all variety.

H. R. has a greater part of his goods made expressly for him, and Mechanics, &c., may place confidence in them, having had the gold medal awarded him, at the late Fair, for the best tools,

First rate Razors; Pen and Pocket Knives; Table Knives and Forks, &c.

☞ Remember, at the corner of Chambers and Chatham streets. dec26

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J. CHAPMAN'S

## Gentlemen's Furnishing Store,

*No. 354 Pearl Street,*

One door from Franklin Square, New York.

Stocks, Cravats, ready made linen, hosiery, gloves; and a variety of other articles, of the best quality, constantly on hand, and for sale at the lowest prices. jny 29

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JOHN BROWN.

CARPENTER AND PRINTER'S JOINER.

*Nos. 29 & 61 Ann-street, N. Y.*

MANUFACTURER of Cases, Stands, Furniture, &c. Stereotype Blocks, of various sizes.

Box-wood and mahogany, for Engravers, always on hand.

Stereotype plates blocked at short notice.

Press, paper, and letter boards, of every description.

Book-binders' cutting and pattern boards.

Stereotype boxes, made to order.

Printers', stereotypers, type-founders's, and book-binders' jobbing work done at the shortest notice.

N. B. Orders from various sections of the country solicited, and promptly executed. nov9

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## W. N. SEYMOUR & Co.

IMPORTERS AND DEALERS,

AT THE

Old Established Hardware and Tool Store,

*No. 4 Chatham Square,*

(at the Foot of the Bowery, N.Y.)

HAVE the greatest assortment of Hardware for builders; Mechanics' tools of all descriptions.

Wm. Graves & Sons' warranted cast steel files & tools.

Worrall's warranted cast steel saws.

Hoe & Co.'s do. do. do.

Cabinet Trimmings. Tin and wooden ware.

House-keeping articles of great variety.

Agricultural tools. Patent Safety Fuse for blasting.

Sole Agents, for this city, for J. A. Fay's patent Mortising Machine.

THE INVISIBLE DOOR SPRING.

W. N. S. & Co. have taken the exclusive agency, for this city, of Ellis's Invisible Door Spring, which commands a ready preference over all others, and has made arrangements to have them put on and adjusted to the doors of those who may require them; Mr. Shaffer, 75 Warren st, is engaged to superintend this department, and will promptly attend to all orders in this line.

Dec. 25.

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GALVANIC RINGS

AND

MAGNETIC FLUID.

DR. CHRISTIE, the original inventor and patentee of these celebrated articles, informs the public, that the ONLY place in New York to obtaim them GENUINE is at 134 Fulton street, Sun building. In all cases of RHEUMATISM and Nervous Complaints, no matter how chronic or severe in their character, the GALVANIC RINGS and MAGNETIC FLUID are a *positive* and *permanent* cure, and every day brings fresh evidence of their wonderful efficacy in cases where every thing else has entirely failed.

☞ Bear in mind, that all articles of the kind not obtained at 134 Fulton street, Sun Building, are base and worthless counterfeits.

For sale in any quantity, and at prices within reach of all. Pamphlets can be obtained gratis. nov9.

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## The Nautilus.

The most complete, improved and perfect

LIFE PRESERVER

that has ever yet been used or known, is manufactured and for sale at No. 90 Nassau street. This instrument is so constructed as to be condensed into a small compass, and may ever be carried in the pocket; but when required for use, it instantly inflates itself, and may be adjusted round the body and secured in one fourth of a minute, and will effectually secure the wearer against the possibility of drowning. The price of the article is $3,50. jan 22.

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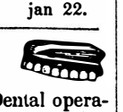
## TEETH.



THE cheapest office in this city for Dental operations is Dr. Brown's, 280 1-2 Broadway, between Reade and Chambers st.

| | |
|---|---|
| Natural and mineral teeth inserted from | $1 to 3 50 |
| Decayed teeth filled with white cement, and warranted useful for mastication, | 50 |
| Toothache cured effectually without pain, | 50 |
| Teeth extracted with less than half the usual pain | 50 |

Dr. BROWN,
280 1-2 Broadway, 3 doors above Chambers, next to Stewart' & Co.'s new store.

References can be had from several hundred families, also to the medical faculty of the city. nov18

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GALVANIC APPARATUS.

DANIEL DAVIS, Jr., 428 Washington street, Boston, manufactures all the variety of philosophical apparatus, connected with Magnetism, Galvanism, Electro-magnetism, and Magneto Electricity. He has constantly on hand a variety of Electro-magnetic machines, permanent magnets, Galvanic Batteries, &c. For sale on the most liberal terms. nov18

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## Book for Mechanics.

THE ENGINEER'S AND MECHANIC'S

COMPANION.

Comprising Weights, Measures, Mensuration of superfices and solids, tables of squares and cubes,—square and cube roots, circumference, and areas of circles, the mechanical powers, centres of gravity, gravitation of bodies; strength, weight, and crush of materials; water-wheels; hydrostatics, hydraulics, statics, centres of percussion and giration; friction, heat, tables of weight and metals; pipes, scantling, and interest; steam and the steam engine.

By J. M. SCRIBNER, A. M.

Recently published, and for sale by

HUNTINGTON & SAVAGE,
216 Pearl st., price $1,12 to $1,50.

For sale, also, at this office. jny1

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JOHNSON'S

## DINING SALOON,

No. 144 FULTON STREET.

(Near Broadway): New York.

**BILL OF FARE.**

| | | | |
|---|---|---|---|
| Roast Turkey, | 18d | Boiled Ham, | 6d |
| " Goose, | 18d | Pork and Beans, | 6d |
| " Chicken, | 18d | Veal Pie, | 6d |
| " Duck, | 18d | Beef Steak Pie, | 6d |
| " Beef, | 6d | Chicken Pie, | 12d |
| " Pork, | 6d | Mush and Milk, | 6d |
| " Veal, | 6d | Rice and Milk, | 6d |
| " Lamb, | 6d | Lamb Pot Pie, | 6d |
| " Pig, | 12d | Fried Fish, | 6d |
| Boiled Chicken, | 12d | Fried Clams, | 6d |
| " Mutton, | 6d | Ham and Eggs, | 12d |
| " Corned Beef, | 6d | Chicken Soup, | 6d |
| " Pork, | 6d | Beef Soup, | 6d |
| " Fish, | 6d | Coffee, | 6d |

Dessert.

| | | | |
|---|---|---|---|
| Suet Pudding | 6d | Mince Pie, | 6d |
| Indian Pudding, | 6d | Apple Pie, | 6d |
| Rice Pudding, | 6d | Peach Pie, | 6d |
| Plum Pudding, | 6d | Plum Pie, | 6d |
| Bread Pudding, | 6d | Pumpkin Pie, | 6d |
| Apple Dumplings, | 6d | Custard Pie, | 6d |

Breakfast and Tea.

| | | | |
|---|---|---|---|
| Beef Steak, | 6d | Hot Corn Bread, | 6d |
| Veal Pie, | 6d | Indian Cakes, | 6d |
| Mutton Chops, | 6d | Boiled Eggs, | 6d |
| Ham and Eggs, | 12d | Fried Eggs, | 6d |
| Fried Tripe, | 6d | Toast, | 6d |
| Fried Sausages, | 6d | Hot Muffins, | 6d |
| Fried Fish, | 6d | Hot Rolls, | 6d |
| Fried Clams, | 6d | Tea, | 3d |
| Fried Liver, | 6d | Coffee, | 3d |

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## The Best Ink Known,

*Two Silver Medals Premium!*

At the Annual Fair of the American and Mechanics' Institute for 1846, a SILVER MEDAL was awarded by each to Thaddeus Davids for "the Best writing Ink known." 500 gross 2, 4 6, 8, 16, and 32 oz. steel pen ink; 100 gross, ditto blue, red, japan, and copying ditto; 200 gross, Indelible Ink, warranted, with and without a preparation in elegant cases; 5000 lbs. wafers, all sizes and qualities from 10 to 50 lbs.; 10,000 lbs., sealing wax from 6cts. to $1, per lbs. For sale, wholesale and retail, on accommodating terms, by THADDEUS DAVIDS,
Importer and manufacturer of sealing wax, wafers, inks, indelible inks, &c., No. 112 John street, New York, and by all stationers, booksellers, druggists, &c., in the United States. jny29

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A. G. Bagley's Celebrated Improved

EVER POINTED GOLD PEN.

THIS Pen received the highest premium at the last Fair of the American Institute, and has been pronounced by the first teachers of Penmanshid in the country to be infinitely superior to any Gold Pen ever before introduced to the American public. The lasting properties of this Pen are undoubted, owing to the total absence of corrosibility from any of the inks in use, and the peculiar shade of the nibs, (which was first introduced by Bagley, (makes it more pleasant to use, renders it less liable to damage, more easy to repair, and prevents the necessity of the great care that other articles of the kind require.

MANUFACTORY, 189 Broadway, N. Y. nov9.

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GURNEY'S PREMIUM DAGUERRIAN Gallery, 180 Broadway, New York.—Pictures taken at the establishment are not excelled in this country—so say his numerous patrons. The public are respectfully invited to call and judge for themselves.

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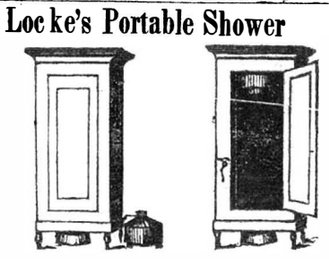
## Locke's Portable Shower



THE subscriber has the satisfaction to announce to the public, that he has perfected, and is prepared to furnish at short notice, a portable shower-bath, far superior in utility and convenience of management, to anything of the kind hitherto offered. It constitutes a light and genteel article of furniture for a bed-chamber, and so perfectly constructed, that either a lady or gentleman can at any moment enjoy a copious shower without the id of servants, and withodt having a drop of the water sprinkled on the carpet or floor. And by a slight change in a part of the apparatus, the same may be converted to a steam-bath, either plain or aromatic. These baths are manufactured and may be examined at No. 31 Ann st. JOHN LOCKE.

Dec 4.

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Just Published

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With 52 engravings, in various bindings.

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IMPORTANT NATIONAL WORK.

THE STATESMAN'S MANUAL.

Just published, a new and enlarged edition of

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E. WALKER, 114 Fulton st.,

Respectfully informs his friends, and the public in general, that he has made extensive preparations for binding the "Harpers' Illuminated Bible," in beautiful and costly pictorial bindings.

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*** Country newspapers, copying the whole of this advertisement, and giving it six inside insertions, shall be entitled to a copy of any one of the above works,—all who may comply with the above terms, will please send a copy of the paper, each time of insertion, to the publisher, E. WALKER, 114 Fulton st., New York.

Feb11tf.

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